15. **T. M. BIRSHTEIN, V. P. BUDTOV, E. V. FRISMAN** and **N. K. YANOVSKAYA,** Vysokomol. soyed. **4**: 455, 1962 (Not translated in Polymer Sci. U.S.S.R.)
16. **M. G. VITOVSKAYA, V. N. TSVETKOV, L. I. GODUNOVA** and **T. V. SHEREMETEVA,** Vysokomol. soyed. **A9**: 1682, 1967 (Translated in Polymer Sci. U.S.S.R. **9**: 8, 1893, 1967)

NMR LINE WIDTH WITH ALLOWANCE FOR THE DISTRIBUTION OF CORRELATION TIMES*

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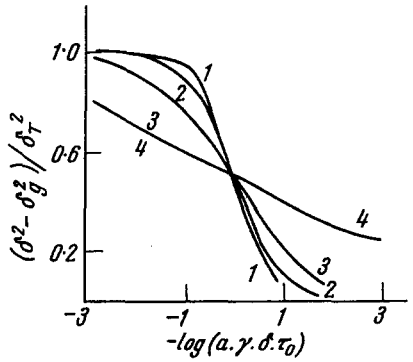
Mathematical expressions have been derived for NMR line width on the basis of the general theory of magnetic resonance absorption described by Kubo–Tomita. Allowance is made for the distribution of correlation times of molecular motion in polymers described by the curves of Fuoss–Kirkwood, Cole–Cole, Cole–Davidson and Gavrilyaka–Negami.

IT IS known that the distribution of correlation times τ of molecular motion in polymers influences the temperature dependence of the NMR line width, δ.

The character of the distribution of correlation times τ depends on the dielec-



Dimensionless line width $(\delta^2-\delta_d^2)/\delta_T^2$ vs. logarithm of dimensionless most probable correlation time $(a\cdot\gamma\cdot\delta\cdot\tau_0)$ for Cole–Cole distribution with $a=1$ (*1*); 0·8 (*2*); 0·5 (*3*) and 0·2 (*4*); $\delta_d=0^2$, $\delta_T=6{\cdot}8$ Oe; $a\sim1$.

tric relaxation data. Depending of the particular type of polymer, the correlation time spectra are described by the curves of Gauss [1], Fuoss and Kirkwood [2], Cole and Cole [3], Cole and Davidson [4] and Gavrilyak and Negami [5].

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